



Problems – 09/15/2025

The solutions to the problems below
will be published on Thursday 09/18/2025

Problem 1. Prove that if for positive integers a , b , and c the equality

$$\sqrt{a} + \sqrt{b} = c$$

holds, then a and b are perfect squares of integers.

Problem 2. Positive numbers x , y , z satisfy the equality $x + y + z = 1$.
Prove that:

$$\frac{7x^2 + 4y^2 + 2z^2}{2(x + y)} + \frac{2x^2 + 7y^2 + 4z^2}{2(y + z)} + \frac{4x^2 + 2y^2 + 7z^2}{2(z + x)} > 3.$$

Good Luck!

We encourage you to submit your solutions via the website:

<https://mathlovers.eu/submit-solution/>!